CSc Practical Worksheet 2(Solution)

A'S
Paper 1

Topic: Database & SQL & DBMS

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1 A company takes customer service for its clients very seriously.

The client

- The client names are unique.

A visit

- The company arranges a date for a visit to gather feedback from a client.
- A visit to a client never takes more than one day.
- Over time, the client receives many visits.

Staff (Interviewers)

- One or more staff attend the visit.
- If there is more than one staff member visiting, each performs a separate interview.

Interviews

- Each interview is classified as either 'general' or by some specialism, for example, marketing, customer service or sales.
- A report is produced for each interview, `InterviewText`.
- Each interview is conducted by a single staff member.

The client, visit, staff and interview data will be stored in a relational database.

(a) (i) Underline the primary key for each table in the following suggested table designs.

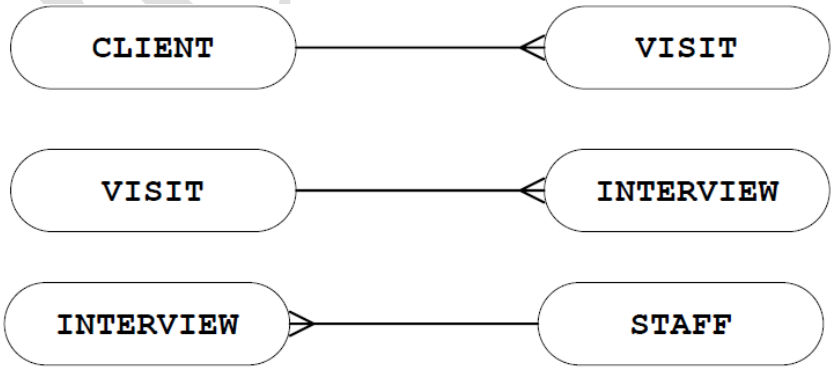
`STAFF(`**`StaffID`**`, StaffName, Department)`

`CLIENT(`**`ClientName`**`, Address, Town)`

`VISIT(`**`ClientName, VisitDate`**`)`

`INTERVIEW(`**`ClientName, VisitDate, StaffID`**`, SpecialistFocus, InterviewText)`

(ii) For each of the pairs of entities, A, B and C, draw the relationship between the two entities.



Mike Sir

(b) The company decides to produce a visit report, `VisitReportText`, for each visit made.

This text will be produced from the one or more interview texts obtained at the visit. State how one or more of the given table designs can be changed to add this attribute.

Add attribute `VisitReportText` to table `VISIT`

(c) Client ABC Holdings are now trading under the name of Albright Holdings.

(i) Write an SQL script to update this client's record in the database.

```
UPDATE CLIENT
SET ClientName = 'Albright Holdings'
WHERE ClientName = 'ABC Holdings';
```

(ii) Describe why this update could cause problems with the existing data stored.

Referential integrity should be maintained // Referential integrity could be violated

Data becomes inconsistent

(d) Write an SQL script to display the Staff ID of each member of staff who performed an interview when they visited New Age Toys on 13/10/2016.

```
SELECT StaffID FROM INTERVIEW
WHERE ClientName = 'New Age Toys'
AND VisitDate = '13/10/2016';
```

(e) At present, all interviews are performed in the UK. Many clients now operate in other countries in Europe. The company wants to perform interviews with the client's staff in other countries. Not all interview staff are willing to travel outside of the UK.

State how one or more of the table designs should be revised to store this information.

Add a suitable attribute, for example, `EuropeTraveller` to the `STAFF` table

Duke Sir

2 A Local Area Network is used by school staff who access data stored in a Database Management System (DBMS).

(a) (i) Explain the difference between security and privacy of data.

Security is keeping the data safe from accidental / malicious damage /loss
Privacy is the need to restrict access to personal data to avoid it being seen by unauthorised people

(ii) Give an example for this application where privacy of data is a key concern.

Personal data of students / staff

(b) Name and describe **two** security measures the Network Manager has in place to protect the security of the data held in the DBMS.

1 **Physical measures:** Locked doors/keyboards etc. Secure methods of access, keypads/ biometric scans etc.

2 **Encryption:** If accessed, data cannot be understood by unauthorised personnel accessed only by those with the decryption key

(c) A task for staff at the start of the school year is to key in new pupil data from a paper document.

The data is entered to a screen form and includes the data verification of some fields. Describe what is meant by **verification**.

Checking that the data entered matches / is consistent with that of the source. Comparison of two versions of the data. Examples include double entry, visual checking, proof reading etc.

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